Public Health and Ecological Interconnectivity: A Conditional Probability Approach Associating Degradation of Streams and Infant Mortality

Authors: John F. Paul, Michael E. McDonald, Steven F. Hedtke
U.S. EPA/Office of Research and Development (ORD)/National Health and Environmental Effects Research Laboratory/Immediate Office (IO)

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A study was conducted to explore the relationships between public health and ecological condition. Two seemingly unrelated endpoints were used: infant mortality and ecological condition of streams. Data for the state of Maryland aggregated at the county level for the ecological condition of streams (1994–1997) and infant mortality (1989–1998) were used. Correlation analyses indicated that common indicators in a county associated with both stream condition and infant mortality were farming practices, land use, and socioeconomics. A conditional probability relationship between stream condition and infant mortality was developed in terms of the probability that infant mortality in a county was higher than the national norm (8.2 per 1000 for 1989–1998) when a given value for proportion of stream miles within the county with degraded condition was exceeded. This relationship was also shown to hold for counties in Pennsylvania and West Virginia. The implication of the result of this study is that, if we want to protect both the environment and public health, we can achieve both more effectively and efficiently by understanding the common factors that link the two. Understanding these linkages can provide environmental and public health officials greater insights into underlying causative factors and, therefore, preventative measures. This will require greater coordination and cooperation between practitioners in both fields.

Point of Contact:
John F. Paul
Research Environmental Scientist
U.S. EPA/ORD/NHEERL/IO
109 TW Alexander Drive
Mail Code B343-06
Research Triangle Park, NC 27711
919-541-3160
paul.john@epa.gov